

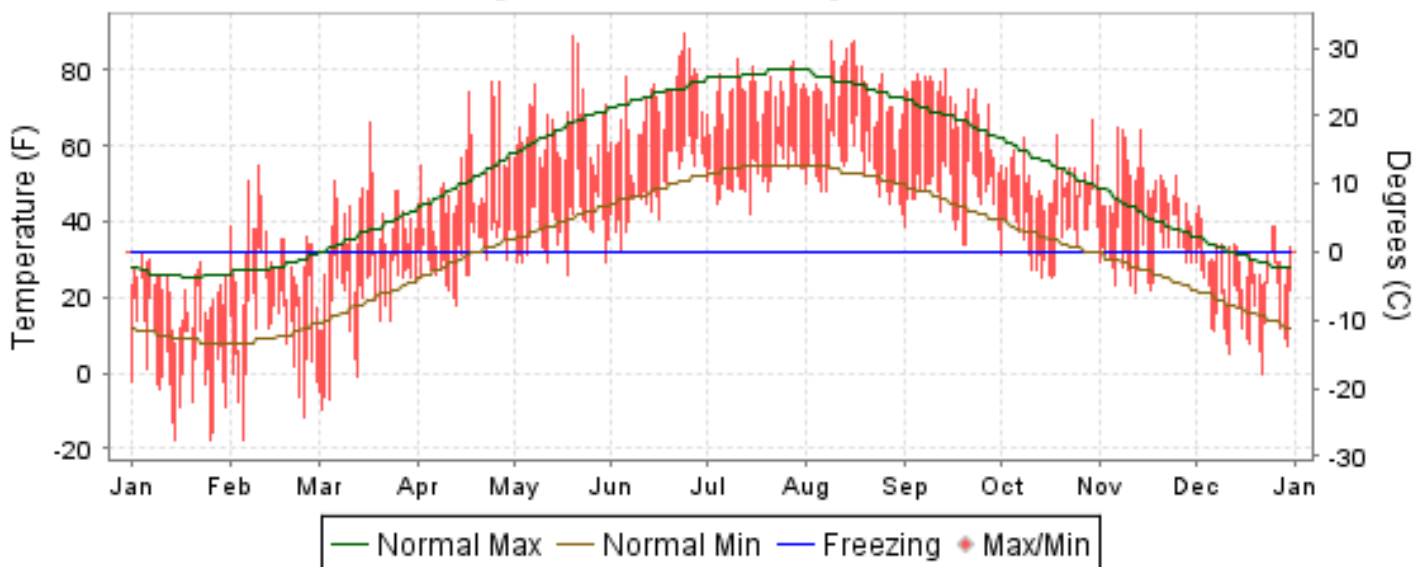


# 2009 LOCAL CLIMATOLOGICAL DATA ANNUAL SUMMARY WITH COMPARATIVE DATA

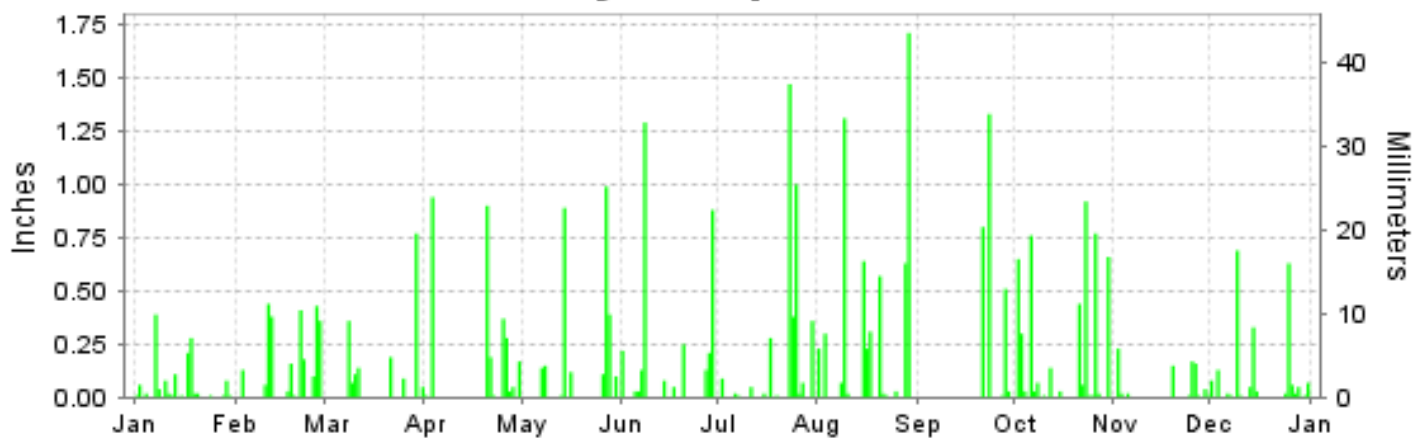
ISSN 0198-2494

## ALPENA, MICHIGAN (KAPN)

### Daily Max/Min Temperature



### Daily Precipitation



### Daily Station Pressure



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ASHEVILLE, NORTH CAROLINA

*Thomas R. Karl*  
DIRECTOR  
NATIONAL CLIMATIC DATA CENTER

# METEOROLOGICAL DATA FOR 2009

## ALPENA (KAPN)

LATITUDE: 45° 4' N      LONGITUDE: -83° 34' W      ELEVATION (FT): GRND: 684    BARO: 680      TIME ZONE: EASTERN (UTC -5)      WBAN: 94849

ELEMENT		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	
TEMPERATURE °F	MEAN DAILY MAXIMUM	21.5	30.6	38.3	51.3	64.7	71.0	73.7	75.0	71.1	52.0	49.6	30.4	52.4	
	HIGHEST DAILY MAXIMUM	32	55	66	77	89	90	83	88	80	67	65	44	90	
	DATE OF OCCURRENCE	04	10	17	27+	20	24	10	16+	14	30	07	02	JUN 24	
	MEAN DAILY MINIMUM	2.4	10.4	18.3	31.0	37.6	49.5	52.2	54.1	46.9	36.6	31.5	17.2	32.3	
	LOWEST DAILY MINIMUM	-18	-18	-10	18	26	32	42	42	34	25	21	0	-18	
	DATE OF OCCURRENCE	26+	05	02	13	18	04	14	31	20+	17+	12	22	FEB 05	
	AVERAGE DRY BULB	12.0	20.5	28.3	41.2	51.2	60.3	63.0	64.6	59.0	44.3	40.6	23.8	42.4	
	MEAN WET BULB	12.4		25.1	35.9	45.2	55.2	57.8	60.3	55.2	41.9	38.1	22.9		
	MEAN DEW POINT	7.6		18.3	27.5	37.4	50.9	53.9	57.2	52.1	38.7	34.7	19.1		
	NUMBER OF DAYS WITH:														
	MAXIMUM >= 90°	0	0	0	0	0	1	0	0	0	0	0	0	0	1
	MAXIMUM <= 32°	4	16	7	0	0	0	0	0	0	0	0	20	47	
MINIMUM <= 32°	31	27	31	17	9	1	0	0	0	10	17	30	173		
MINIMUM <= 0°	15	7	5	0	0	0	0	0	0	0	0	1	28		
H/C	HEATING DEGREE DAYS	1638	1241	1130	709	428	185	80	83	175	634	729	1271	8303	
	COOLING DEGREE DAYS	0	0	0	0	7	50	27	78	5	0	0	0	167	
RH	MEAN (PERCENT)	76	75	68	63	62	74	75	79	80	82	81	80	75	
	HOUR 01 LST	80	79	78	73	80	87	89	91	93	89	89	83	84	
	HOUR 07 LST	80	81	79	67	65	78	79	86	91	89	90	87	81	
	HOUR 13 LST	68	64	55	50	46	59	55	61	58	67	65	73	60	
	HOUR 19 LST	75	73	66	61	58	73	75	80	85	87	83	80	75	
S	PERCENT POSSIBLE SUNSHINE														
W/O	NUMBER OF DAYS WITH:														
	HEAVY FOG(VISBY <= 1/4 MI)	2	3	4	1	1	1	4	2	9	4	6	1	38	
	THUNDERSTORMS	0	0	0	2	4	6	6	4	0	0	0	1	23	
CLOUDNESS	SUNRISE-SUNSET: (OKTAS)														
	CEILOMETER (<= 12,000 FT.)														
	SATELLITE (> 12,000 FT.)														
	MIDNIGHT-MIDNIGHT: (OKTAS)														
	CEILOMETER (<= 12,000 FT.)														
SATELLITE (> 12,000 FT.)															
NUMBER OF DAYS WITH:															
CLEAR															
PARTLY CLOUDY															
CLOUDY															
PR	MEAN STATION PRESS. (IN.)	29.20	29.24	29.38	29.21	29.23	29.15	29.16	29.22	29.36	29.21	29.33	29.24	29.24	
	MEAN SEA-LEVEL PRESS. (IN.)	29.99	30.03	30.16	29.98	29.97	29.88	29.90	29.97	30.11	29.97	30.08	30.02	30.01	
WINDS	RESULTANT SPEED (MPH)	2.6		0.4	1.9	1.2	0.8	1.7	1.7	0.4	1.3	1.9	1.6		
	RES. DIR. (TENS OF DEGS.)	26		03	01	24	05	26	23	03	19	20	23		
	MEAN SPEED (MPH)	6.4	8.1	7.9	9.1	8.4	5.5	5.7	5.9	4.2	6.3	5.5	6.8	6.7	
	PREVAIL.DIR.(TENS OF DEGS.)	24	30	13	09	30	31	28	20	12	23	18	24	24	
	MAXIMUM 2-MINUTE WIND														
	SPEED (MPH)	25	29	30	31	32	25	24	29	24	36	32	33	36	
	DIR. (TENS OF DEGS.)	32	35	26	23	17	34	32	34	34	25	33	09	25	
	DATE OF OCCURRENCE	23	27	11	27	13	05	11	09	29	30	05	09	OCT 30	
	MAXIMUM 3-SECOND WIND:														
	SPEED (MPH)	39	41	45	47	40	35	30	43	33	55	41	45	55	
DIR. (TENS OF DEGS.)	30	31	24	23	26	35	32	25	32	24	33	08	24		
DATE OF OCCURRENCE	23	19	11	27	14	05	11	16	29	30	05	09	OCT 30		
PRECIPITATION	WATER EQUIVALENT:														
	TOTAL (IN.)	1.39	2.69	1.78	2.95	2.90	3.30	3.78	6.08	2.68	4.91	0.82	2.21	35.49	
	GREATEST 24-HOUR (IN.)	0.39	0.79	0.77	0.94	1.35	1.29	1.64	2.32	1.33	0.92	0.23	0.69	2.32	
	DATE OF OCCURRENCE	07	26-27	29	03	27-28	08	23-24	28-29	23	23	02	09	AUG 28-29	
	NUMBER OF DAYS WITH:														
	PRECIPITATION 0.01	18	12	8	10	9	11	13	14	5	17	10	16	143	
PRECIPITATION 0.10	2	9	5	6	8	7	5	9	3	8	4	4	70		
PRECIPITATION 1.00	0	0	0	0	0	1	2	2	1	0	0	0	6		
SNOWFALL	SNOW,ICE PELLETS,HAIL														
	TOTAL (IN.)	30.0	22.6	10.5	0.1	T	0.0	0.0	0.0	0.0	T	0.1	21.1	84.4	
	GREATEST 24-HOUR (IN.)	6.2	6.1	4.7	0.1	T	0.0	0.0	0.0	0.0	T	0.1	7.6	7.6	
	DATE OF OCCURRENCE	18	21	08	06	16					15+	30	09	DEC 09	
	MAXIMUM SNOW DEPTH (IN.)	28	23	19	T	0	0	0	0	0	0	0	10	28	
	DATE OF OCCURRENCE	20	23	09	10+								18+	JAN 20	
NUMBER OF DAYS WITH:															
SNOWFALL >= 1.0	9	5	4	0	0	0	0	0	0	0	0	6	24		

# NORMALS, MEANS, AND EXTREMES ALPENA (KAPN)

**LATITUDE:** 45° 4 'N      **LONGITUDE:** -83° 34'W      **ELEVATION (FT):** GRND: 684 BARO: 680      **TIME ZONE:** EASTERN (UTC -5)      **WBAN: 94849**

	ELEMENT	POR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
<b>TEMPERATURE °F</b>	NORMAL DAILY MAXIMUM	30	26.1	28.2	37.3	50.3	64.3	73.8	79.0	76.1	67.4	55.6	42.2	31.2	52.6
	MEAN DAILY MAXIMUM	50	26.7	28.7	37.9	51.7	64.7	74.5	79.5	77.1	69.0	56.7	43.2	31.6	53.4
	HIGHEST DAILY MAXIMUM	51	52	65	80	90	94	103	102	102	94	90	76	65	103
	YEAR OF OCCURRENCE		1998	1984	2000	2002	1962	1995	1983	1988	1983	2007	1978	2001	JUN 1995
	MEAN OF EXTREME MAXS.	50	43.7	47.0	61.0	76.6	85.2	91.2	92.4	90.4	84.9	77.5	62.4	49.4	71.8
	NORMAL DAILY MINIMUM	30	9.5	9.7	18.7	30.2	40.0	48.8	54.5	52.9	45.2	35.6	27.0	16.9	32.4
	MEAN DAILY MINIMUM	50	10.2	9.4	18.0	30.3	39.8	48.8	54.4	53.1	46.0	36.6	28.0	17.4	32.7
	LOWEST DAILY MINIMUM	51	-28	-37	-27	-7	20	28	34	30	25	16	-6	-18	-37
	YEAR OF OCCURRENCE		1994	1979	1962	2003	1966	1966	1965	1982	1993	1997	1995	1985	FEB 1979
	MEAN OF EXTREME MINS.	50	-12.0	-13.1	-5.5	15.4	26.4	35.1	41.4	39.6	30.8	22.5	11.2	-4.2	15.6
	NORMAL DRY BULB	30	17.8	19.0	28.0	40.3	52.2	61.3	66.7	64.5	56.3	45.6	34.6	24.0	42.5
	MEAN DRY BULB	50	18.5	19.1	28.0	41.0	52.3	61.8	67.0	65.1	57.5	46.6	35.6	24.5	43.1
	MEAN WET BULB	26	18.5	18.8	25.1	35.8	46.2	56.2	60.9	60.1	53.7	42.6	33.1	23.6	39.6
	MEAN DEW POINT	26	15.7	15.2	21.3	31.1	42.2	53.0	58.1	57.9	51.3	39.8	30.3	20.9	36.4
	NORMAL NO. DAYS WITH: MAXIMUM >= 90	30	0.0	0.0	0.0	*	0.2	1.7	2.8	1.2	0.2	0.0	0.0	0.0	6.1
MAXIMUM <= 32	30	21.9	18.0	8.6	1.0	0.0	0.0	0.0	0.0	0.0	0.1	4.3	15.6	69.5	
MINIMUM <= 32	30	30.2	27.1	27.8	18.3	5.7	0.3	0.0	*	2.0	10.6	21.6	28.7	172.3	
MINIMUM <= 0	30	7.2	7.1	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	2.6	19.6	
<b>H/C</b>	NORMAL HEATING DEG. DAYS	30	1448	1285	1133	729	394	150	46	82	267	587	897	1256	8274
	NORMAL COOLING DEG. DAYS	30	0	0	0	3	13	54	115	82	22	1	0	0	290
<b>RH</b>	NORMAL (PERCENT)	30	78	76	73	67	68	71	73	77	79	77	79	80	75
	HOURLY 01 LST	30	81	80	80	77	81	87	88	90	89	84	82	83	84
	HOURLY 07 LST	30	83	82	84	80	79	82	86	91	92	87	84	84	85
	HOURLY 13 LST	30	72	67	61	53	52	54	55	59	61	62	69	73	62
	HOURLY 19 LST	30	77	73	68	60	58	61	62	69	76	76	78	80	70
<b>S</b>	PERCENT POSSIBLE SUNSHINE	37	36	45	53	53	59	63	63	57	50	41	27	27	48
<b>W/O</b>	MEAN NO. DAYS WITH: HEAVY FOG(VISBY <= 1/4 MI)	45	2.0	2.0	3.2	2.3	2.6	2.5	2.3	3.4	3.0	2.8	2.7	2.0	30.8
	THUNDERSTORMS	45	0.2	0.1	0.9	2.2	4.0	5.3	7.1	5.9	3.6	1.5	0.3	0.2	31.3
<b>CLOUDNESS</b>	MEAN: SUNRISE-SUNSET (OKTAS)	37	6.2	5.9	5.4	5.4	5.0	4.7	4.4	4.5	5.1	5.5	6.4	6.5	5.4
	MIDNIGHT-MIDNIGHT (OKTAS)	31	6.3	5.8	5.2	5.0	4.6	4.4	4.2	4.1	4.6	5.3	6.2	6.4	5.2
	MEAN NO. DAYS WITH: CLEAR	37	3.1	4.1	6.4	6.3	7.5	7.6	7.6	8.4	6.0	4.8	2.3	1.8	65.9
	PARTLY CLOUDY	37	7.3	7.1	7.9	7.6	9.6	10.6	12.9	10.5	9.3	8.1	5.8	6.3	103.0
	CLOUDY	37	20.6	17.1	16.6	16.2	14.0	11.7	9.7	11.4	13.8	17.3	21.0	22.0	191.4
<b>PR</b>	MEAN STATION PRESSURE(IN)	26	29.24	29.27	29.28	29.22	29.22	29.21	29.23	29.27	29.29	29.27	29.25	29.25	29.25
	MEAN SEA-LEVEL PRES. (IN)	26	30.02	30.05	30.05	29.98	29.97	29.95	29.96	30.02	30.03	30.03	30.01	30.02	30.01
<b>WINDS</b>	MEAN SPEED (MPH)	26	8.6	8.5	8.6	9.0	8.1	7.1	6.7	6.4	6.9	7.7	8.4	8.2	7.9
	PREVAIL.DIR.(TENS OF DEGS)	34	30	31	31	31	12	14	28	31	25	25	25	25	25
	MAXIMUM 2-MINUTE: SPEED (MPH)	13	31	33	38	38	33	31	34	31	38	36	38	36	38
	DIR. (TENS OF DEGS)		02	24	09	16	18	01	18	22	19	25	20	22	09
	YEAR OF OCCURRENCE		2005	2001	2007	1997	2001	1997	1997	2001	2002	2009	1998	2008	MAR 2007
	MAXIMUM 3-SECOND SPEED (MPH)	13	47	49	49	52	40	39	41	43	46	55	56	54	56
	DIR. (TENS OF DEGS)		27	22	10	28	26	20	24	25	30	24	22	23	22
YEAR OF OCCURRENCE		2008	2001	2007	2002	2009	2007	2005	2009	1998	2009	1998	2008	NOV 1998	
<b>PRECIPITATION</b>	NORMAL (IN)	30	1.76	1.35	2.13	2.31	2.61	2.53	3.17	3.50	2.80	2.33	2.08	1.83	28.40
	MAXIMUM MONTHLY (IN)	51	4.12	3.88	7.37	4.15	8.29	8.37	7.17	6.26	7.12	6.53	7.45	5.07	8.37
	YEAR OF OCCURRENCE		1997	1997	1998	1980	1983	1969	1975	1994	1986	1991	1966	1996	JUN 1969
	MINIMUM MONTHLY (IN)	51	0.16	0.12	0.34	1.18	0.90	0.20	0.22	0.92	0.28	0.61	0.61	0.39	0.12
	YEAR OF OCCURRENCE		1961	1982	1993	1978	2005	1991	1989	1970	1979	1971	1986	1994	FEB 1982
	MAXIMUM IN 24 HOURS (IN)	51	1.83	1.51	1.97	1.41	2.50	2.65	3.15	3.18	3.02	3.56	1.93	1.63	3.56
	YEAR OF OCCURRENCE		1978	1997	1998	2007	1973	1969	1974	1968	1968	1998	1966	1971	OCT 1998
	NORMAL NO. DAYS WITH: PRECIPITATION >= 0.01	30	15.3	11.6	12.7	11.5	11.1	10.3	10.6	10.6	12.2	12.5	13.5	14.8	146.7
PRECIPITATION >= 1.00	30	0.1	0.1	0.1	*	0.3	0.4	0.8	0.7	0.5	0.3	0.2	0.2	3.7	
<b>SNOWFALL</b>	NORMAL (IN)	30	21.8	16.5	12.9	5.8	0.3	0.0	0.0	0.0	0.*	0.4	8.5	19.6	85.8
	MAXIMUM MONTHLY (IN)	43	43.5	35.3	35.8	16.7	3.7	T	T	T	T	4.3	34.8	48.1	48.1
	YEAR OF OCCURRENCE		1978	2006	1971	2007	1974	2006	2007	1996	1995	1969	1995	2008	DEC 2008
	MAXIMUM IN 24 HOURS (IN)	43	16.3	13.7	17.3	12.2	4.2	0.9	T	T	T	3.8	16.1	16.4	17.3
	YEAR OF OCCURRENCE		1978	1994	1985	1992	1994	1994	1996	1991	1995	1969	1966	1989	MAR 1985
	MAXIMUM SNOW DEPTH (IN)	41	610	632	566	59	3	0	0	0	0	3	111	451	632
	YEAR OF OCCURRENCE		1979	1985	1962	1972	1994					1969	1995	1989	FEB 1985
NORMAL NO. DAYS WITH: SNOWFALL >= 1.0	30	6.1	4.6	3.6	1.9	0.1	0.0	0.0	0.0	0.0	0.1	2.5	5.8	24.7	

**PRECIPITATION (inches) 2009 ALPENA (KAPN)**

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1980	0.95	0.47	1.22	4.15	1.87	3.34	2.11	3.29	2.51	0.99	1.03	2.19	24.12
1981	0.46	1.93	1.01	3.41	1.14	2.11	1.50	2.20	2.38	2.98	1.12	1.17	21.41
1982	2.06	0.12	2.33	1.62	1.68	3.37	1.65	3.07	3.61	1.45	2.73	2.81	26.50
1983	1.80	1.48	2.82	2.70	8.29	1.76	2.48	2.62	3.50	3.90	1.74	1.92	35.01
1984	0.89	0.81	2.22	2.89	1.89	2.88	2.35	5.92	3.76	2.79	2.01	2.22	30.63
1985	1.71	2.77	2.77	2.63	2.70	1.00	3.80	4.74	3.07	2.80	3.24	2.60	33.83
1986	1.04	1.06	2.30	1.86	2.41	3.36	5.28	1.83	7.12	2.83	0.61	0.95	30.65
1987	0.94	0.87	0.94	1.20	1.75	3.38	1.17	4.77	3.29	2.00	2.21	2.17	24.69
1988	1.51	1.04	2.72	3.25	0.99	0.84	2.61	4.48	1.50	3.43	3.54	1.24	27.15
1989	1.42	0.61	2.68	2.20	1.89	2.67	0.22	2.29	1.90	2.20	2.27	1.53	21.88
1990	2.44	1.17	2.89	2.32	2.88	4.18	3.69	2.35	1.58	3.07	2.89	1.79	31.25
1991	0.96	0.49	3.04	2.57	6.26	0.20	5.16	3.38	2.24	6.53	1.50	1.44	33.77
1992	1.70	1.70	1.50	2.61	1.10	1.69	3.37	2.65	2.53	2.34	4.01	1.24	26.44
1993	1.33	0.81	0.34	3.16	2.49	4.00	1.71	5.67	1.51	1.98	2.56	0.41	25.97
1994	1.95	1.04	1.29	2.64	1.58	3.23	5.53	6.26	1.61	1.38	2.90	0.39	29.80
1995	1.77	0.84	0.99	3.16	1.29	2.01	2.96	2.34	1.72	1.89	4.17	1.36	24.50
1996	1.42	1.51	0.49	2.78	1.20	2.29	4.06	1.75	6.16	2.37	.76	5.07	29.86
1997	4.12	3.88	2.49	1.77	2.66	0.42	3.05	5.83	2.86	1.82	1.31	0.73	30.94
1998	3.73	0.82	7.37	1.24	2.36	2.91	1.09	2.47	2.92	4.61	2.24	1.41	33.17
1999	2.32	1.39	0.73	1.39	1.56	3.32	2.07	1.32	2.30	1.39	0.78	1.64	20.21
2000	1.69	2.05	0.92	1.65	3.82	2.75	1.34	1.38	3.60	0.87	3.22	0.67	23.96
2001	0.78	1.37	0.36	2.46	4.19	2.01	0.39	2.74	6.46	3.32	1.48	1.46	27.02
2002	0.39	1.82	2.11	2.66	3.87	2.95	3.72	1.99	1.24	2.20	1.32	0.53	24.80
2003	0.19	0.31	1.61	2.16	3.05	2.45	4.68	1.70	2.58	1.15	3.18	1.39	24.45
2004	0.73	0.50	1.25	2.17	4.89	1.62	3.96	2.21	0.40	2.76	1.61	1.90	24.00
2005	2.44	1.37	1.08	2.16	0.90	2.66	2.83	4.93	2.45	0.74	2.74	1.62	25.92
2006	2.87	1.74	1.66	1.78	3.67	2.47	2.80	4.12	2.81	4.02	2.09	2.48	32.51
2007	1.08	0.57	1.81	4.13	1.75	2.59	4.38	2.05	1.86	3.28	1.27	2.10	26.87
2008	3.30	1.88	1.27	2.08	1.91	4.71	4.86	1.20	3.79	1.36	1.72	3.85	31.93
2009	1.39	2.69	1.78	2.95	2.90	3.30	3.78	6.08	2.68	4.91	0.82	2.21	35.49
POR= 50 YRS	1.70	1.34	1.92	2.35	2.75	2.81	3.00	3.28	2.94	2.31	2.16	1.88	28.44

WBAN : 94849

**AVERAGE TEMPERATURE (°F) 2009 ALPENA (KAPN)**

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1980	19.8	16.8	26.1	40.4	53.7	56.8	67.6	68.6	57.2	43.7	33.6	18.6	41.9
1981	14.7	24.5	32.1	44.3	52.0	62.4	67.5	64.9	54.1	41.4	35.8	26.3	43.3
1982	11.2	17.3	25.4	37.5	56.9	56.4	67.9	61.6	57.4	48.7	36.0	31.4	42.3
1983	22.2	25.1	30.8	39.8	47.0	61.9	72.2	68.5	59.8	45.6	35.0	18.7	43.9
1984	13.1	28.4	24.6	43.3	48.5	63.2	66.4	67.5	54.4	48.6	35.3	27.9	43.4
1985	16.3	17.6	30.5	44.8	53.7	58.5	65.8	63.9	59.1	46.8	35.3	19.6	42.7
1986	18.3	19.3	30.1	45.0	54.6	58.7	68.2	62.4	57.2	45.9	33.3	29.2	43.5
1987	23.2	22.4	32.5	44.9	55.5	65.3	70.4	65.6	59.8	43.4	38.0	29.4	45.9
1988	18.6	15.4	27.6	41.6	56.0	64.8	71.6	68.1	58.0	43.1	37.4	23.9	43.8
1989	25.7	16.8	23.9	39.2	53.7	60.8	68.7	64.8	56.2	47.8	31.1	12.5	41.8
1990	26.9	22.1	31.1	44.3	50.4	61.9	66.8	65.8	57.1	45.4	38.5	26.7	44.8
1991	18.6	26.2	31.2	45.4	58.4	65.6	67.7	68.3	55.5	47.9	33.9	25.0	45.3
1992	22.3	23.5	26.8	38.5	52.6	58.5	61.3	62.0	55.7	44.3	34.1	27.9	42.3
1993	21.5	16.1	26.8	39.1	51.4	59.8	69.5	67.8	52.2	43.7	34.6	25.9	42.4
1994	8.1	11.6	28.9	43.1	53.1	64.1	66.9	63.5	59.9	49.0	38.9	32.1	43.3
1995	24.0	16.8	32.0	37.9	53.1	65.6	68.6	68.5	55.2	49.0	29.4	20.6	43.4
1996	15.8	17.5	24.7	36.9	48.4	62.0	64.2	66.4	59.6	46.5	31.4	26.0	41.6
1997	17.4	20.7	26.1	39.1	46.0	64.4	66.1	62.0	57.6	46.0	33.0	29.4	42.3
1998	24.3	29.7	29.9	43.4	58.1	62.0	67.4	67.2	59.9	47.9	38.4	29.0	46.4
1999	18.1	24.6	28.9	43.2	54.4	65.0	70.1	63.3	58.4	45.8	40.5	26.5	44.9
2000	19.5	24.1	36.8	40.7	54.4	60.9	64.8	63.8	56.6	48.8	35.9	16.6	43.6
2001	23.6	20.5	27.4	44.1	56.9	64.5	67.0	69.3	57.2	47.2	42.8	32.2	46.1
2002	26.3	24.9	25.5	41.6	48.0	62.7	71.1	65.9	63.2	42.1	33.0	26.3	44.2
2003	16.3	13.4	26.9	37.5	50.0	60.3	66.6	67.5	57.6	45.1	37.3	27.5	42.2
2004	12.5	21.0	32.2	42.0	50.4	59.4	64.8	62.0	62.7	48.9	37.6	22.1	43.0
2005	16.9	23.6	23.8	42.7	49.5	67.6	68.8	66.6	61.5	49.9	37.3	22.7	44.2
2006	27.5	20.2	31.1	44.3	56.2	64.2	71.2	65.3	56.5	43.8	38.1	32.1	45.9
2007	23.3	14.2	31.9	40.3	55.5	65.5	66.6	67.5	61.3	53.1	33.9	23.6	44.7
2008	22.5	18.1	25.5	45.2	49.4	64.0	67.3	65.1	58.4	45.8	35.0	20.2	43.0
2009	12.0	20.5	28.3	41.2	51.2	60.3	63.0	64.6	59.0	44.3	40.6	23.8	42.4
POR= 50 YRS	18.5	19.1	28.0	41.0	52.3	61.8	67.0	65.1	57.5	46.6	35.6	24.5	43.1

**HEATING DEGREE DAYS (base 65°F) 2009 ALPENA (KAPN)**

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1980-81	25	15	248	652	937	1430	1551	1129	1013	616	397	115	8128
1981-82	43	62	325	725	868	1193	1663	1330	1219	819	249	250	8746
1982-83	29	145	258	501	864	1034	1319	1112	1053	748	551	154	7768
1983-84	24	32	216	600	893	1427	1605	1054	1247	644	505	105	8352
1984-85	42	39	314	502	884	1144	1502	1321	1060	613	353	197	7971
1985-86	50	88	217	554	885	1401	1441	1272	1075	594	338	209	8124
1986-87	43	105	240	588	945	1100	1289	1188	1002	594	332	75	7501
1987-88	45	64	164	660	805	1096	1431	1433	1151	697	290	112	7948
1988-89	8	77	213	673	824	1269	1211	1342	1268	769	345	147	8146
1989-90	16	90	272	525	1010	1621	1173	1194	1045	639	443	131	8159
1990-91	39	38	259	600	787	1181	1433	1080	1040	595	262	63	7377
1991-92	34	40	304	525	927	1233	1317	1197	1177	784	392	213	8143
1992-93	123	136	286	639	919	1144	1341	1362	1178	772	418	170	8488
1993-94	9	39	378	655	902	1207	1767	1491	1114	655	376	105	8698
1994-95	37	90	177	488	774	1014	1264	1344	1018	805	369	74	7454
1995-96	25	21	303	490	1059	1369	1518	1373	1243	839	521	137	8898
1996-97	53	32	191	564	1004	1202	1469	1231	1198	771	584	85	8384
1997-98	73	125	225	583	952	1097	1255	984	1081	640	235	156	7406
1998-99	24	36	171	525	790	1109	1448	1125	1110	645	339	100	7422
1999-00	18	89	208	586	727	1188	1404	1180	867	725	347	157	7496
2000-01	76	80	267	495	863	1493	1276	1242	1161	620	254	100	7927
2001-02	55	20	255	543	661	1011	1192	1115	1219	710	520	144	7445
2002-03	21	45	132	709	950	1192	1503	1439	1173	819	455	167	8605
2003-04	23	40	223	608	824	1153	1623	1270	1011	685	460	184	8104
2004-05	65	130	126	497	815	1322	1484	1151	1269	663	472	54	8048
2005-06	32	32	138	488	824	1303	1118	1251	1042	614	285	77	7204
2006-07	6	62	259	647	800	1011	1286	1417	1021	733	323	76	7641
2007-08	43	41	164	382	928	1275	1310	1357	1219	587	475	95	7876
2008-09	33	62	198	594	890	1382	1638	1241	1130	709	428	185	8490
2009-	80	83	175	634	729	1271							

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**COOLING DEGREE DAYS (base 65°F) 2009 ALPENA (KAPN)**

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1980	0	0	0	0	9	43	114	133	19	0	0	0	318
1981	0	0	0	3	1	44	124	65	3	0	0	0	240
1982	0	0	0	0	6	1	125	43	37	0	0	0	212
1983	0	0	0	0	0	68	254	144	67	3	0	0	536
1984	0	0	0	0	0	58	92	123	5	0	0	0	278
1985	0	0	0	14	9	8	81	61	46	0	0	0	219
1986	0	0	0	0	24	26	150	34	10	0	0	0	244
1987	0	0	0	0	46	91	218	88	13	0	0	0	456
1988	0	0	0	0	18	113	217	179	9	0	0	0	536
1989	0	0	0	0	1	26	134	89	16	0	0	0	266
1990	0	0	0	25	0	45	101	70	30	0	0	0	271
1991	0	0	0	11	65	88	125	150	25	2	0	0	466
1992	0	0	0	0	13	25	14	51	16	4	0	0	123
1993	0	0	0	0	3	21	153	130	5	0	0	0	312
1994	0	0	0	2	17	83	107	51	30	0	0	0	290
1995	0	0	0	0	7	99	146	136	15	2	0	0	405
1996	0	0	0	0	10	51	36	82	36	0	0	0	215
1997	0	0	0	0	0	75	114	41	9	1	0	0	240
1998	0	0	0	0	28	71	105	111	26	0	0	0	341
1999	0	0	0	0	18	108	185	41	14	0	0	0	366
2000	0	0	0	0	28	42	75	49	22	0	0	0	216
2001	0	0	0	0	13	94	125	161	28	0	0	0	421
2002	0	0	0	16	2	82	218	83	85	10	0	0	496
2003	0	0	0	0	0	33	83	122	9	0	0	0	247
2004	0	0	0	0	8	20	65	47	62	2	0	0	204
2005	0	0	0	0	2	138	155	89	40	29	0	0	453
2006	0	0	0	0	26	59	206	77	8	0	0	0	376
2007	0	0	0	0	35	97	98	125	60	23	0	0	438
2008	0	0	0	0	0	72	111	74	7	3	0	0	267
2009	0	0	0	0	7	50	27	78	5	0	0	0	167

**SNOWFALL (inches) 2009 ALPENA (KAPN)**

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1980-81	0.0	0.0	0.0	1.5	4.6	32.2	14.0	20.5	9.3	T	0.0	0.0	82.1
1981-82	0.0	0.0	0.0	0.3	3.9	18.0	39.8	3.6	20.1	3.6	0.0	0.0	89.3
1982-83	0.0	0.0	0.0	0.2	4.7	4.7	22.4	18.3	16.3	7.1	0.0	0.0	73.7
1983-84	0.0	0.0	0.0	T	5.5	22.1	21.2	8.8	9.2	7.4	0.3	0.0	74.5
1984-85	0.0	0.0	T	0.0	4.5	15.3	40.6	30.7	26.8	4.8	0.0	0.0	122.7
1985-86	0.0	0.0	0.0	T	15.4	27.7	17.2	16.0	12.6	3.6	T	0.0	92.5
1986-87	0.0	0.0	0.0	0.1	4.1	11.1	12.3	17.2	3.5	7.9	0.0	0.0	56.2
1987-88	0.0	0.0	0.0	0.7	6.6	16.2	13.6	22.7	21.5	5.2	0.0	0.0	86.5
1988-89	0.0	0.0	0.0	0.9	3.3	15.3	17.0	12.7	29.8	8.0	0.1	0.0	87.1
1989-90	0.0	0.0	T	0.7	19.1	41.3	25.0	16.4	2.8	10.3	0.3	0.0	115.9
1990-91	0.0	T	0.0	0.3	10.2	19.7	17.1	12.8	6.5	1.7	0.0	0.0	68.3
1991-92	0.0	T	T	T	2.7	26.6	16.5	21.3	5.3	12.7	0.0	0.0	85.1
1992-93	0.0	0.0	0.0	2.8	10.2	8.1	16.3	19.3	7.9	12.5	T	0.0	77.1
1993-94	0.0	0.0	T	0.2	2.7	4.7	43.0	21.3	9.4	4.8	0.2	0.0	86.3
1994-95	0.0	0.0	0.0	T	11.9	1.8	18.1	18.5	8.7	2.9	0.0	0.0	61.9
1995-96	0.0	0.0	T	0.2	34.8	25.0	20.8	15.8	8.4	8.1	0.9	0.0	114.0
1996-97	T	T	0.0	0.2	6.6								
1997-98													
1998-99					4.7								
1999-00					2.2	6.5	19.4	15.6	2.0				
2000-01													
2001-02													
2002-03													
2003-04													
2004-05													
2005-06			0.0	0.0	8.5	23.1	15.3	35.3	0.9	1.7	T	T	
2006-07	0.0	0.0	0.0	T	5.2	12.1	22.9	13.0	11.6	16.7	0.0	0.0	81.5
2007-08	T	0.0	0.0	0.0	8.3	24.1	16.7	21.2	3.8	1.1	0.0	0.0	75.2
2008-09	0.0	0.0	0.0	T	12.4	48.1	30.0	22.6	10.5	0.1	T	0.0	123.7
2009-	0.0	0.0	0.0	T	0.1	21.1							
POR= 51 YRS	T	T	T	0.4	7.6	17.5	18.6	14.4	10.4	4.2	0.2	T	73.3

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**REFERENCE NOTES :**

<p>PAGE 1: THE TEMPERATURE GRAPH SHOWS NORMAL MAXIMUM AND NORMAL MINIMUM DAILY TEMPERATURES (SOLID CURVES) AND THE ACTUAL DAILY HIGH AND LOW TEMPERATURES (VERTICAL BARS).</p> <p>PAGE 2 AND 3: H/C INDICATES HEATING AND COOLING DEGREE DAYS. RH INDICATES RELATIVE HUMIDITY W/O INDICATES WEATHER AND OBSTRUCTIONS S INDICATES SUNSHINE. PR INDICATES PRESSURE. CLOUDINESS ON PAGE 3 IS THE SUM OF THE CEILOMETER AND SATELLITE DATA NOT TO EXCEED EIGHT EIGHTHS(OKTAS).</p> <p>GENERAL: T INDICATES TRACE PRECIPITATION, AN AMOUNT GREATER THAN ZERO BUT LESS THAN THE LOWEST REPORTABLE VALUE. + INDICATES THE VALUE ALSO OCCURS ON EARLIER DATES. BLANK ENTRIES DENOTE MISSING OR UNREPORTED DATA. NORMALS ARE 30-YEAR AVERAGES (1971 - 2000). ASOS INDICATES AUTOMATED SURFACE OBSERVING SYSTEM. PM INDICATES THE LAST DAY OF THE PREVIOUS MONTH. POR (PERIOD OF RECORD) BEGINS WITH THE JANUARY DATA MONTH AND IS THE NUMBER OF YEARS USED TO COMPUTE THE MEAN. INDIVIDUAL MONTHS WITHIN THE POR MAY BE MISSING. WHEN THE POR FOR A NORMAL IS LESS THAN 30 YEARS, THE NORMAL IS PROVISIONAL AND IS BASED ON THE NUMBER OF YEARS INDICATED. 0.* OR * INDICATES THE VALUE OR MEAN-DAYS-WITH IS BETWEEN 0.00 AND 0.05. CLOUDINESS FOR ASOS STATIONS DIFFERS FROM THE NON-ASOS OBSERVATION TAKEN BY A HUMAN OBSERVER. ASOS STATION CLOUDINESS IS BASED ON TIME-AVERAGED CEILOMETER DATA FOR CLOUDS AT OR BELOW 12,000 FEET AND ON SATELLITE DATA FOR CLOUDS ABOVE 12,000 FEET. THE NUMBER OF DAYS WITH CLEAR, PARTLY CLOUDY, AND CLOUDY CONDITIONS FOR ASOS STATIONS IS THE SUM OF THE CEILOMETER AND SATELLITE DATA FOR THE SUNRISE TO SUNSET PERIOD. CLEAR INDICATES 0 - 2 OKTAS, PARTLY CLOUDY INDICATES 3 - 6 OKTAS, AND CLOUDY INDICATES 7 OR 8 OKTAS. WHEN AT LEAST ONE OF THE ELEMENTS (CEILOMETER OR SATELLITE) IS MISSING, THE DAILY CLOUDINESS IS NOT COMPUTED.</p>	<p>GENERAL CONTINUED: WIND DIRECTION IS RECORDED IN TENS OF DEGREES (2 DIGITS) CLOCKWISE FROM TRUE NORTH. "00" INDICATES CALM. "36" INDICATES TRUE NORTH. RESULTANT WIND IS THE VECTOR AVERAGE OF THE SPEED AND DIRECTION. AVERAGE TEMPERATURE IS THE SUM OF THE MEAN DAILY MAXIMUM AND MINIMUM TEMPERATURE DIVIDED BY 2. SNOWFALL DATA COMPRISE ALL FORMS OF FROZEN PRECIPITATION, INCLUDING HAIL. A HEATING (COOLING) DEGREE DAY IS THE DIFFERENCE BETWEEN THE AVERAGE DAILY TEMPERATURE AND 65 F. DRY BULB IS THE TEMPERATURE OF THE AMBIENT AIR. DEW POINT IS THE TEMPERATURE TO WHICH THE AIR MUST BE COOLED TO ACHIEVE 100 PERCENT RELATIVE HUMIDITY. WET BULB IS THE TEMPERATURE THE AIR WOULD HAVE IF THE MOISTURE CONTENT WAS INCREASED TO 100 PERCENT RELATIVE HUMIDITY. ON JULY 1, 1996, THE NATIONAL WEATHER SERVICE BEGAN USING THE "METAR" OBSERVATION CODE THAT WAS ALREADY EMPLOYED BY MOST OTHER NATIONS OF THE WORLD. THE MOST NOTICEABLE DIFFERENCE IN THIS ANNUAL PUBLICATION WILL BE THE CHANGE IN UNITS FROM TENTHS TO EIGHTS(OKTAS) FOR REPORTING THE AMOUNT OF SKY COVER. STATION HISTORY STOPPED WITH THE 2009 ANNUAL. IF YOU NEED HISTORY GO TO "MULTI-NETWORK MEDADATA SYSTEM", URL IS: <a href="https://mi3.ncdc.noaa.gov/mi3qry/login.cfm">https://mi3.ncdc.noaa.gov/mi3qry/login.cfm</a></p> <p><b>NOTE:</b> The "Period of Record:(POR) for all "averages" is based on the "Summary of the Day First Order Station" and "Cooperative Summary of the Day" archives.</p>
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# 2009 ALPENA MICHIGAN (KAPN)

The city of Alpena lies on the northwest shore of Thunder Bay, 8 miles from the open waters of Lake Huron. Lake Huron and Thunder Bay lie at an elevation of 580 feet above sea level. Generally, the land slopes up westward from the lakeshore to 689 feet at the airport. Farther to the west and southwest the land becomes higher and more rolling. A range of hills with tops 1,000 to 1,350 feet lies northwest to southeast about 25 miles southwest of the station.

Summer showers moving from the southwest weaken and sometimes dissipate as they approach Alpena. Winter storms often bring winds with an easterly component. Precipitation from these is increased by moisture and instability picked up from Lake Huron and by forced upslope flow.

The climate of Alpena is influenced by its location with respect to major storm tracks and the effects of the Great Lakes. The normal wintertime storm track is south of the city, and most passing storms bring snow. Rain, freezing rain, and sleet are uncommon, but not unknown, in winter. In summer, most storms pass to the north, often bringing brief showers to the area, but occasionally, heavy thunderstorms with damaging winds occur. The Great Lakes modify most climatic extremes. Precipitation amounts are distributed evenly throughout the year. The lake effect is most pronounced in early winter, before ice forms. Minimum temperatures during this season are higher than would be expected at this latitude. But as nearby waters, particularly the Straits of Mackinac, freeze over, sub-zero temperatures become fairly common by February.

Summers in Alpena are warm and sunny. Brief showers usually occur every few days, often falling on only part of the area. Hailstorms average less than one a year. During prolonged heat waves the highest temperatures in Michigan often occur in the forest area southwest of Alpena. Winter months are cloudy and marked by frequent snow flurries. Storms bring heavier snowfall. Snow cover is sufficiently deep and persistent to provide good protection for grasses and winter grains.

The climate along the immediate Lake Huron shore is semi-maritime and lacks the temperature extremes experienced just a few miles inland. Maximum temperatures near the lake shore average 1.6 degrees lower than those at the airport, minimum temperatures average 5 degrees higher. Afternoon lake breezes which are strongest in the late spring and early summer cause lake shore maximum temperatures to average 3.6 degrees lower during the month of May.

Freezing temperatures have occurred as late as late June and as early as late August. Principal crops in the area are hay, potatoes, berries, and apples.

Prevailing winds are from the northwest except during May and June when southeast winds predominate. Southeast winds are common in the afternoon during all the summer months.

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